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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,594	03/09/2004	Daniel Ming Kwong Woo	WEAT/0537	1108
36735	7590	12/15/2005		EXAMINER
PATTERSON & SHERIDAN, L.L.P. 3040 POST OAK BOULEVARD, SUITE 1500 HOUSTON, TX 77056			HUGHES, JAMES P	
			ART UNIT	PAPER NUMBER
				2883

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

EV

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/796,594	WOO, DANIEL MING KWONG	
	<b>Examiner</b>	<b>Art Unit</b>	
	James P. Hughes	2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 09 March 2004.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-24 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-3, 8-14 and 17-24 is/are rejected.  
 7) Claim(s) 407, 15, and 16 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 09 March 2004 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 5-16-05.

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. Figure 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

2. Claims 11, 20, and 24 are objected to as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear as to what the recited limitation "the Bragg gratings are isolated from strain" entails. Does this mean that gratings see no strain? Does it mean the gratings see stain of less than a threshold value? If so, what is that value? Appropriate action is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim are rejected under 35 U.S.C. 103(a) as being unpatentable over Cherbettchian et al (5,748,565) in view of Varnham et al. (6,195,162). Cherbettchian teaches a method and apparatus of a hydrophone acoustic sensing system comprising a mandrel having a first portion with a first diameter (e.g. 14) and at least portions with a second diameter (16, 18) connected by a slot to guide a section of an optical waveguide is wrapped around the mandrel such that a length of the optical waveguide section is determined by a number of turns wrapped around each of the first and second portions. (See e.g. Col. 2, ll. 45 – Col. 3, ll.55 and Fig. 1)

Cherbettchian does not explicitly teach using an interferometer Bragg grating with the associated signal processing system as the detection mechanism on the hydrophone.

Varnham et al. (6,195,162) teaches an optical fiber hydrophone where the sensing interferometer (20) contains two optical fiber Bragg gratings (21) where the fiber (21) is wrapped around a compliant member 40. (See Col. 5, ll. 35-60 and Fig. 4)

It would have been obvious to one of ordinary skill in the art at the time of the invention to employ a Bragg grating interferometer and the associated analysis equipment in the invention of Cherbettchian because as taught by Varnham, such systems are efficient for detection acoustic signals.

Regarding claims 10 and 19, Cherbettchian in view of Varnham does not a third portion having a third diameter. However, it would have been obvious to one of ordinary skill in the art to employ a third sensing region with a different diameter and degree of winding because this would allow a different sensitivity for the hydrophone and thus would provide a more versatile device.

***Allowable Subject Matter***

4. Claims 4-7, 15, and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter.

The claims would be allowable because the prior art of record does not teach or fairly suggest a mandrel with a central bore with a Bragg grating inserted; in combination with the other recited limitations in the claims.

***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The enclosed Notice of References Cited sheet lists several hydrophones with varying mandrel diameters.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James P. Hughes whose telephone number is 571-272-2474. The examiner can normally be reached on Monday - Friday 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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